

### **REMARKS**

By way of this communication applicants have amended claim 1 by substituting the language "process consists essentially of" for "process comprised of" in the preamble of the claim.

Claims 1-7, 9-16 and 18-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as being obvious over Harrison et al.

#### **Examiner's Position**

It is the Examiner's position that Harrison et al. teach a process wherein hydrocarbon feedstock is passed through two or more hydrodesulfurization zones and connected in a series each zone containing a packed bed of solid catalyst wherein the liquid is passed from a first zone to the next until the final zone. The Examiner further mentions: make-up hydrogen being supplied to the hydrodesulfurization zone other than the first zone; hydrogen-containing gas being recovered from a subsequent hydrodesulfurization zone; target sulfur levels, etc. The Examiner believes that Harrison et al. teach a process and composition that reasonably appears to be either the same or an obvious variation of the instantly claimed product and composition.

Further, the Examiner rejects applicants' previous argument with respect to the ratio of hydrogen to feed.

#### **Applicants' Position**

Harrison et al teaches a multi-step hydrodesulfurization process wherein a sulfur containing hydrocarbon feedstock is passed to two or more hydrodesulfurization zones that are connected in series, each containing a bed of solid hydrodesulfurization catalyst. The liquid is passed from the first zone to the next until the final zone. Make up hydrogen is supplied to a hydrodesulfurization zone other than the first hydrodesulfurization zone. *Liquid material*

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*recovered from the first hydrodesulfurization zone is recycled to the inlet of the hydrodesulfurization zone so as to provide diluent for admixture with liquid feedstock.*

Applicants' contend that the instant claims, as now amended, do not encompass the recycle of such a liquid stream to the inlet of the hydrodesulfurization zone.

Therefore, it is requested that the Examiner reconsider and withdraw this rejection.

For the foregoing reasons applicants contend that the claims, as now amended, define a patentable invention over the cited art. Therefore, it is requested that the Examiner pass this application to allowance.

Respectfully submitted,

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**MARKED-UP VERSION OF AMENDED CLAIMS ACCOMPANYING RESPONSE TO  
FINAL OFFICE ACTION FOR 09/553,107**

1. (Twice Amended) 1. A multi stage process for reducing the level of sulfur and in a distillate feedstock having a sulfur content greater than about 3,000 wppm, which process [comprises] consists essentially of:

- a) reacting said feedstream in a first hydrodesulfurization stage in the presence of a hydrogen-containing treat gas, a portion of which is cascaded from the second hydrodesulfurization stage of d) below, said first hydrotreating stage containing one or more reaction zones, each reaction zone operated at hydrodesulfurizing condition and in the presence of a hydrodesulfurization catalyst, thereby resulting in a liquid product stream having a sulfur content less than about 1,000 wppm;
- b) passing the liquid product stream to a separation zone wherein a hydrogen-containing product gas stream and a liquid phase product stream are produced;
- c) passing the liquid phase stream to a second hydrodesulfurization stage;
- d) reacting said liquid phase product stream in said second hydrodesulfurization stage in the presence of a hydrogen-containing treat gas, wherein the rate of introduction of the hydrogen portion of the treat gas in this second stage is less than or equal to 3 times the chemical hydrogen consumption in this second reaction stage, said second hydrodesulfurization stage containing one or more reaction zones operated at hydrodesulfurization conditions wherein each reaction zone contains a bed of hydrotreating catalyst, thereby resulting in a liquid product stream having less than about 100 wppm sulfur;

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e) passing the liquid product stream of step d) above to a second separation zone wherein a hydrogen-containing product gas stream and a liquid phase product stream are produced.